

What is claimed is:

1. A steam expander comprising  
at least one hopper for supplying expandable loose fill material;  
at least one housing having an inlet in communication with said hopper to receive a flow of loose fill material therefrom and an outlet for discharging the received loose fill material therefrom ;  
a screw rotatably mounted in said housing for conveying loose fill material received through said inlet towards said outlet;  
a steam chamber in communication with said outlet of said housing to receive loose fill material therefrom; and  
a paddle frame rotatably mounted in said chamber to rotate about a central axis, said paddle frame having at least one scoop mounted on a periphery thereof and extending longitudinally thereof in spaced parallel relation to said central axis, said scoop being disposed in spaced relation to said outlet of said housing for scooping loose fill material delivered into said steam chamber peripherally of said steam chamber.
2. A steam expander as set forth in claim 1 wherein said paddle frame has a pair of said scoops disposed on diametrically opposite sides thereof.
3. A steam expander as set forth in claim 2 wherein each said scoop is of L shape.
4. A steam expander as set forth in claim 1 wherein said screw has a plurality of flights for conveying received loose fill material towards said outlet during rotation of said screw, at least some of said flights being disposed in alignment with said inlet and being of a smaller radius than the remainder of said flights.

5. A steam expander comprising

a pair of hoppers for supplying expandable loose fill material;

a pair of housings, one of said housings having an inlet in communication with one of said hoppers to receive a flow of loose fill material therefrom and a second of said housings having an inlet in communication with the other of said hoppers to receive a flow of loose fill material therefrom, each said housing having a respective outlet for discharging the received loose fill material therefrom;

a pair of screws, one of said screws being rotatably mounted in one of said housings and disposed for conveying loose fill material received through said inlet of said one housing towards said outlet thereof and the other of said screws being rotatably mounted in the other of said housings and disposed for conveying loose fill material received through said inlet thereof towards the said outlet thereof;

a steam chamber in communication with said outlets of said housings to receive loose fill material therefrom; and

a paddle frame rotatably mounted in said chamber to rotate about a central axis, said paddle frame having at least one scoop mounted on a periphery thereof and extending longitudinally thereof in spaced parallel relation to said central axis, said scoop being disposed in spaced relation to said outlets of said housing for scooping loose fill material delivered into said steam chamber peripherally of said steam chamber.

6. A steam expander as set forth in claim 5 wherein said paddle frame has a pair of said scoops disposed on diametrically opposite sides thereof.

7. A steam expander as set forth in claim 6 wherein each said scoop is of L shape.

8. A steam expander as set forth in claim 5 wherein said screw has a plurality of flights for conveying received loose fill material towards said outlet during rotation of said screw, at least some of said flights being disposed in alignment with said inlet and being of a smaller radius than the remainder of said flights.